

POWER ARTICULATING-TOP DRIVE
(NOTE RED-ARTICULATING CYLINDERS)
AND POWER SWING SLIDES

FIGURE 1

For Patent Purposes:
Date: DEC 22/03
Signature: *[Signature]*
Signature: *[Signature]*

NOVEMBER 2003

DRILL PIPE ROLLING FROM THE PIPE TUB TO
THE "PIPE LAUNCHER"

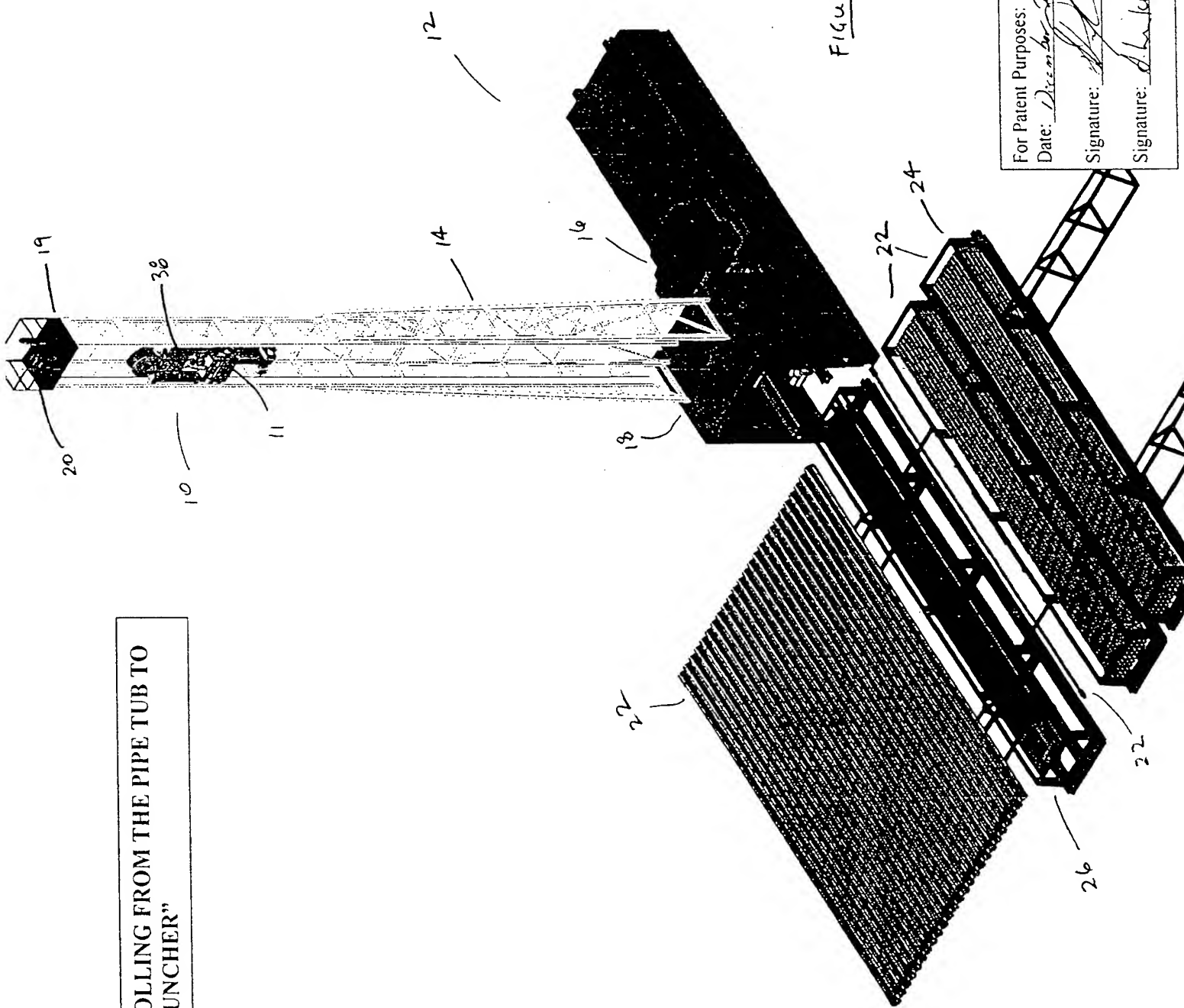


FIGURE 2

For Patent Purposes:
 Date: *December 2002*
 Signature: *[Signature]*
 Signature: *[Signature]*

PIPE IN LAUNCHER READY FOR ALIGNMENT
TO DESCENDING ARTICULATING TOP DRIVE

For Patent Purposes:

Date: Dec. 22/03

Signature: *AL*

Signature: *M*

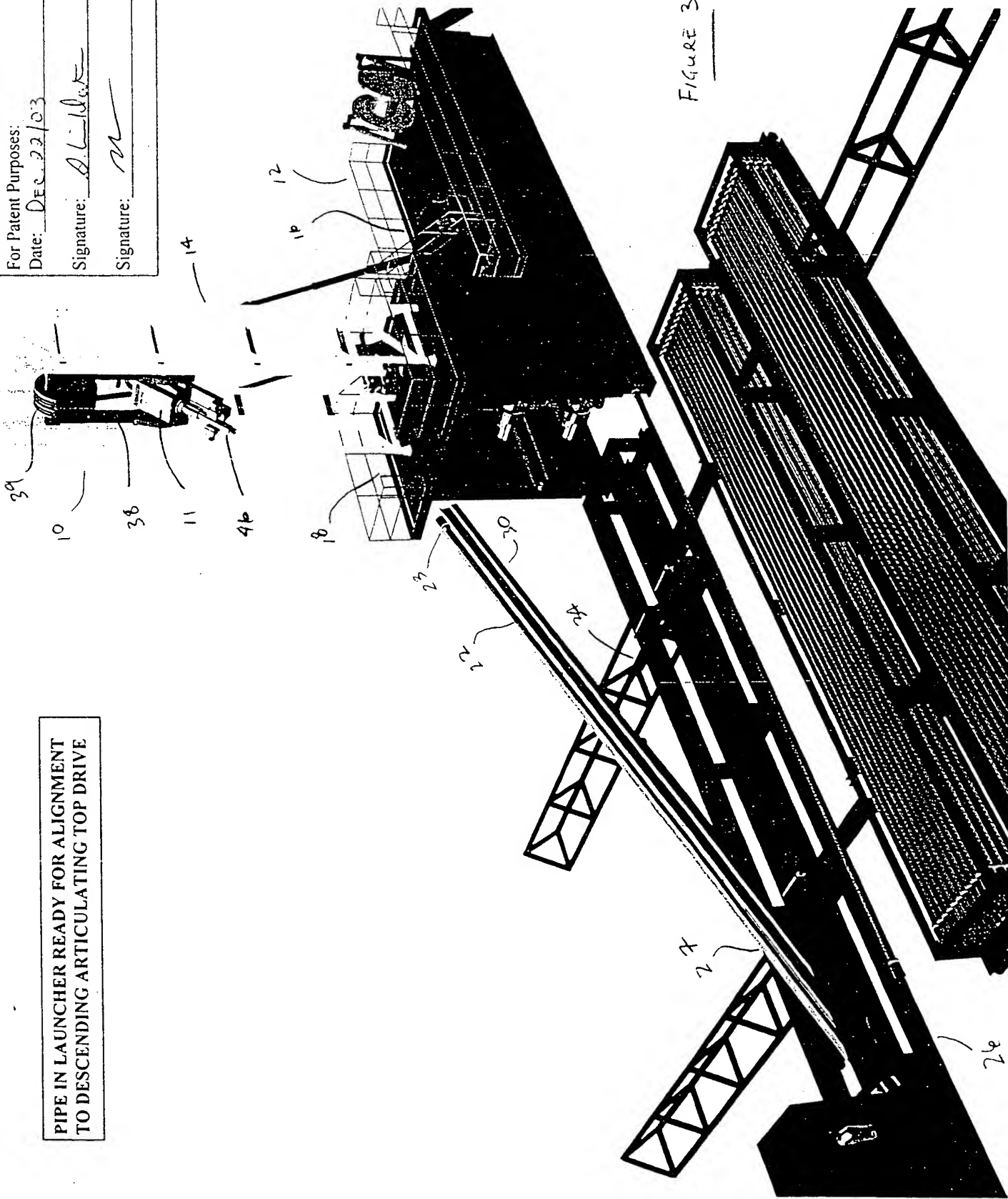


Figure 3

NOVEMBER 2003

Date: DEC. 22/03
Signature: A. Lakshmi
Signature: M

**PIPE ALIGNMENT READY FOR PIPE LAUNCHER
TO POSITION PIPE IN TARGET ZONE**

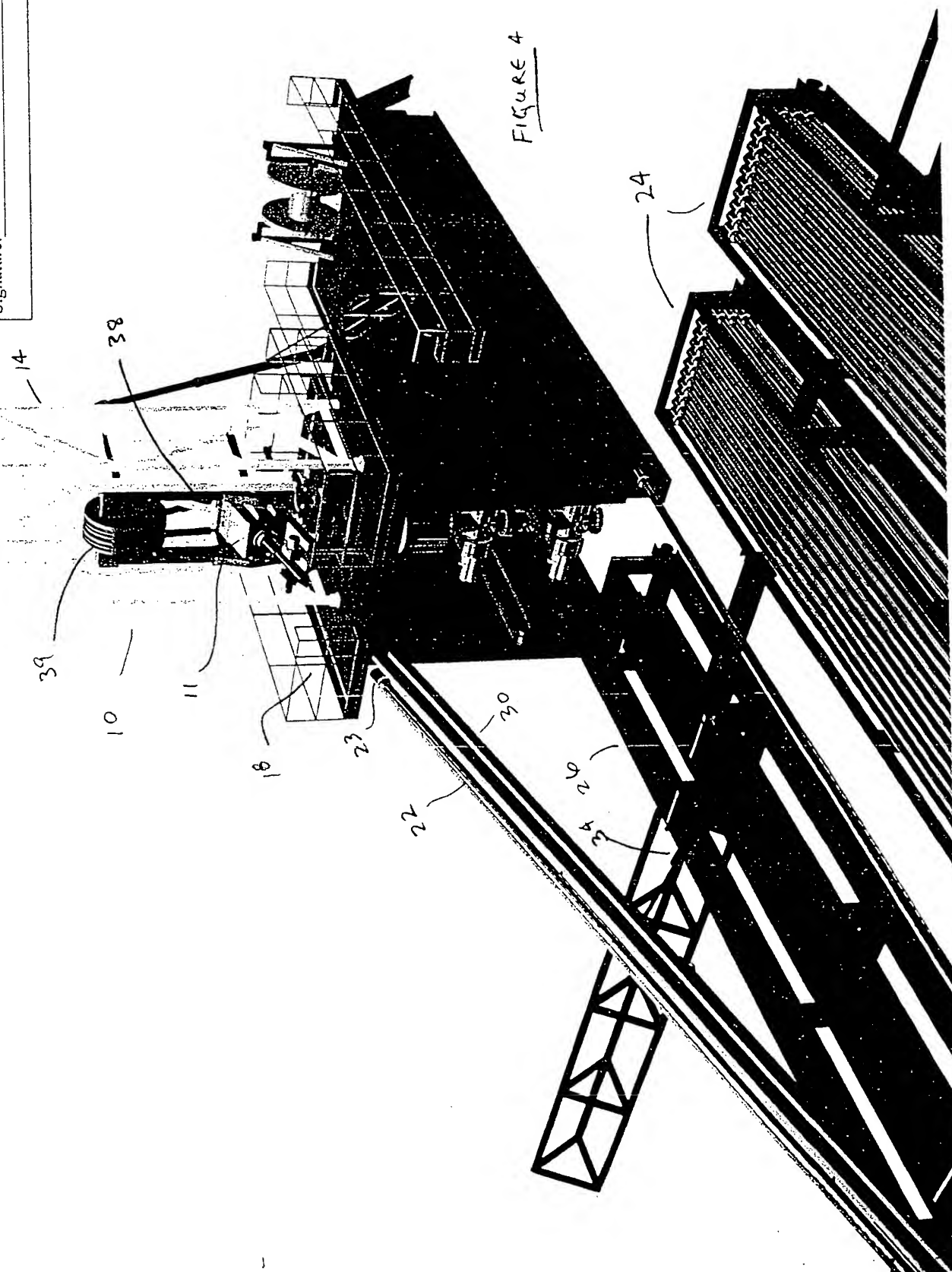
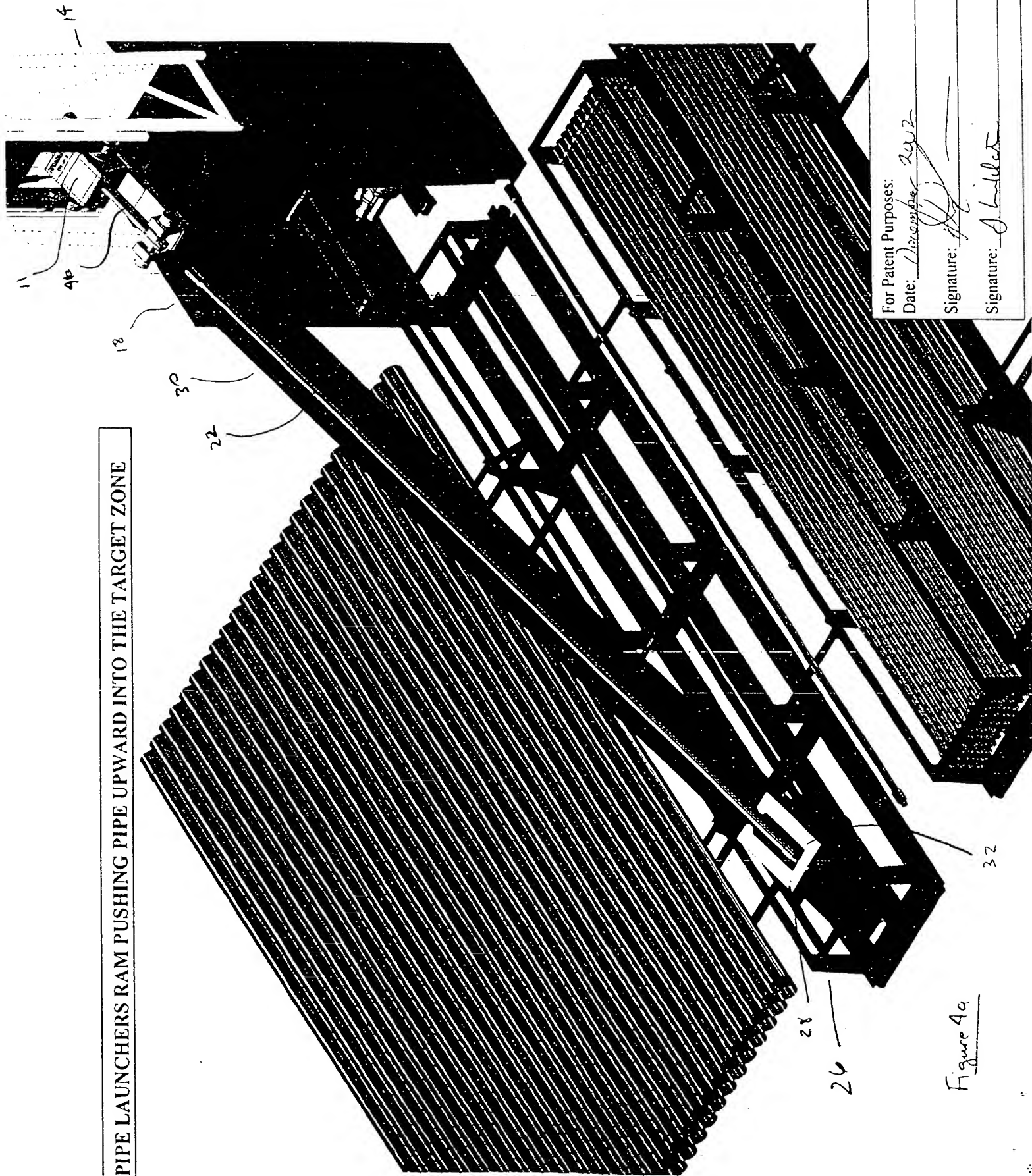


FIGURE 4

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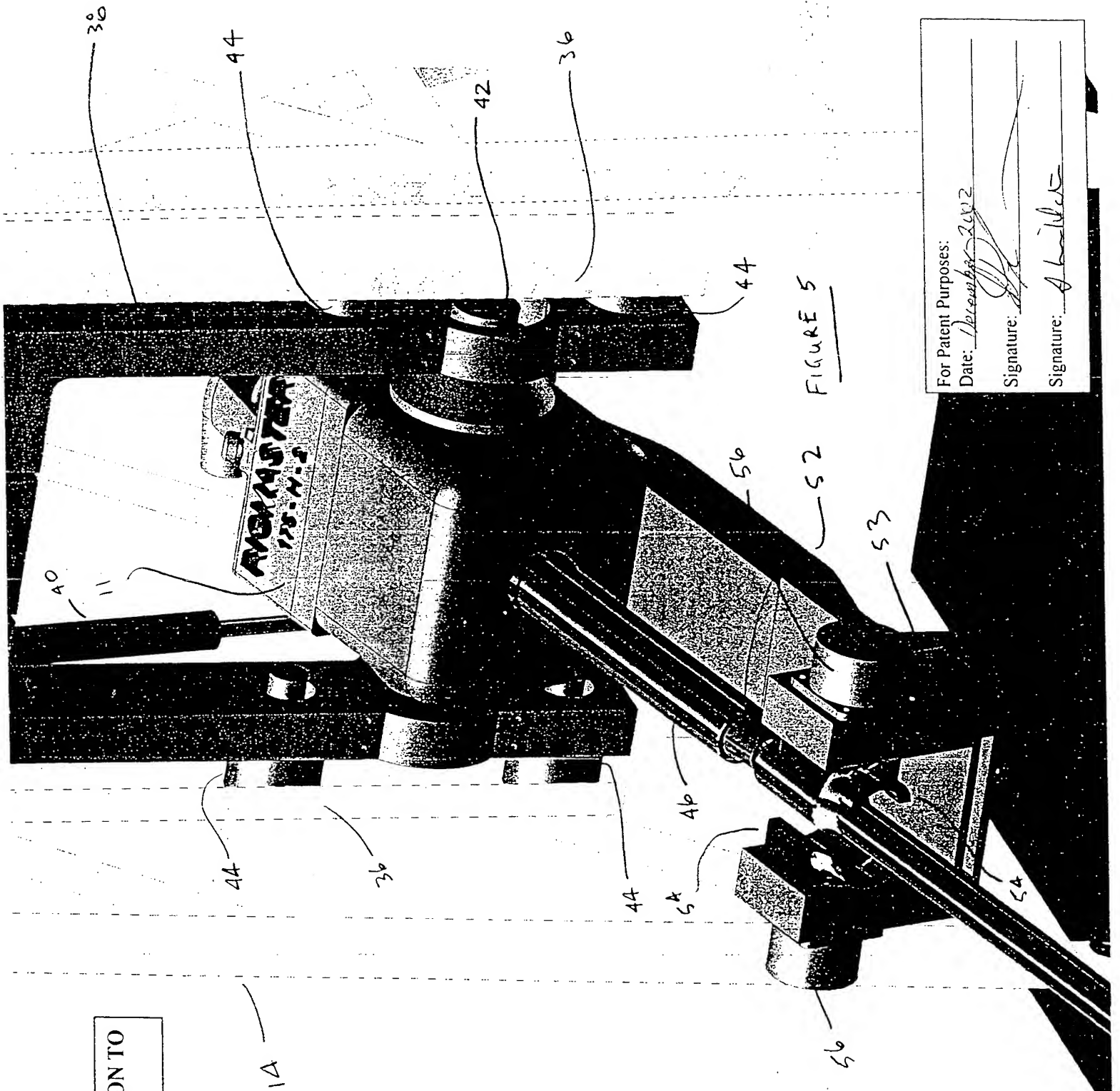
PIPE LAUNCHERS RAM PUSHING PIPE UPWARD INTO THE TARGET ZONE



For Patent Purposes:
Date: December 2002
Signature: [Signature]
Signature: [Signature]

Figure 4a

TOP DRIVE IN POSITION TO
GRIP TUBULAR



For Patent Purposes:

Date: December 2002

Signature: *[Signature]*

Signature: *[Signature]*

GRIPPER IN ACTION, CLAMPED TO
TOOL JOINT, READY TO SLIDE UPWARD
TO MEET THE SLOWLY ROTATING TOP
DRIVE QUILL



FIGURE 6 22

For Patent Purposes:

Date: Dec. 22/03

Signature: *A. L. Lister*

Signature: *m*

CONNECTION COMPLETED, GRIPPER
REMAINS LOCKED ON FOR HOISTING



FIGURE 7 12

For Patent Purposes:

Date: DEC 22/03

Signature: *Alldate*

Signature: *M*

NOVEMBER 2003

GOING UP, DRAGGING THE PIPE WITH
THE TOP DRIVE ARTICULATING RAMS
SET TO THE FLOAT POSITION



14

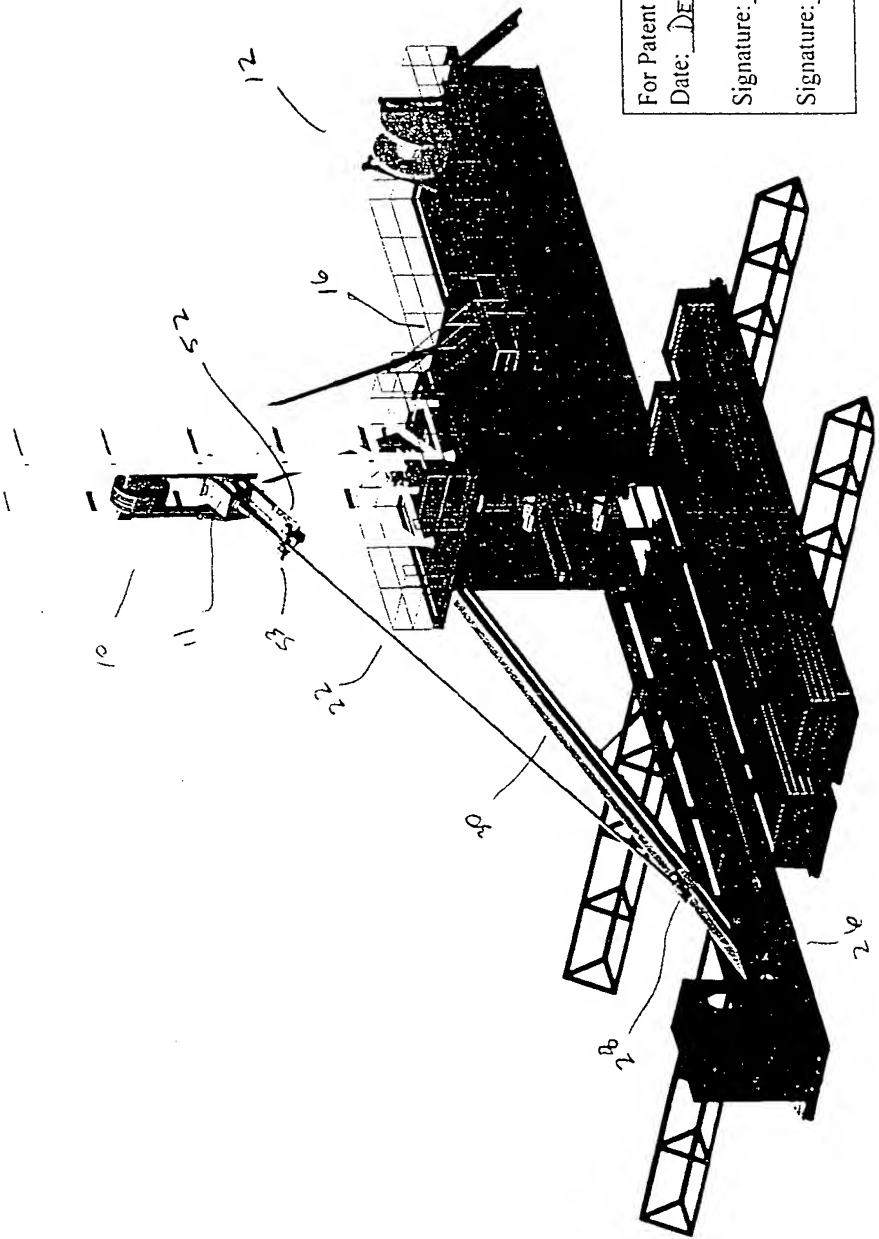


FIGURE 8

For Patent Purposes:

Date: DEC 22/03

Signature: A. Wilder

Signature: M

NOVEMBER 2003

DRILL PIPE READY TO BREAK FREE OF THE DOLLY AND SWING GENTLY INTO THE VERTICAL POSITION

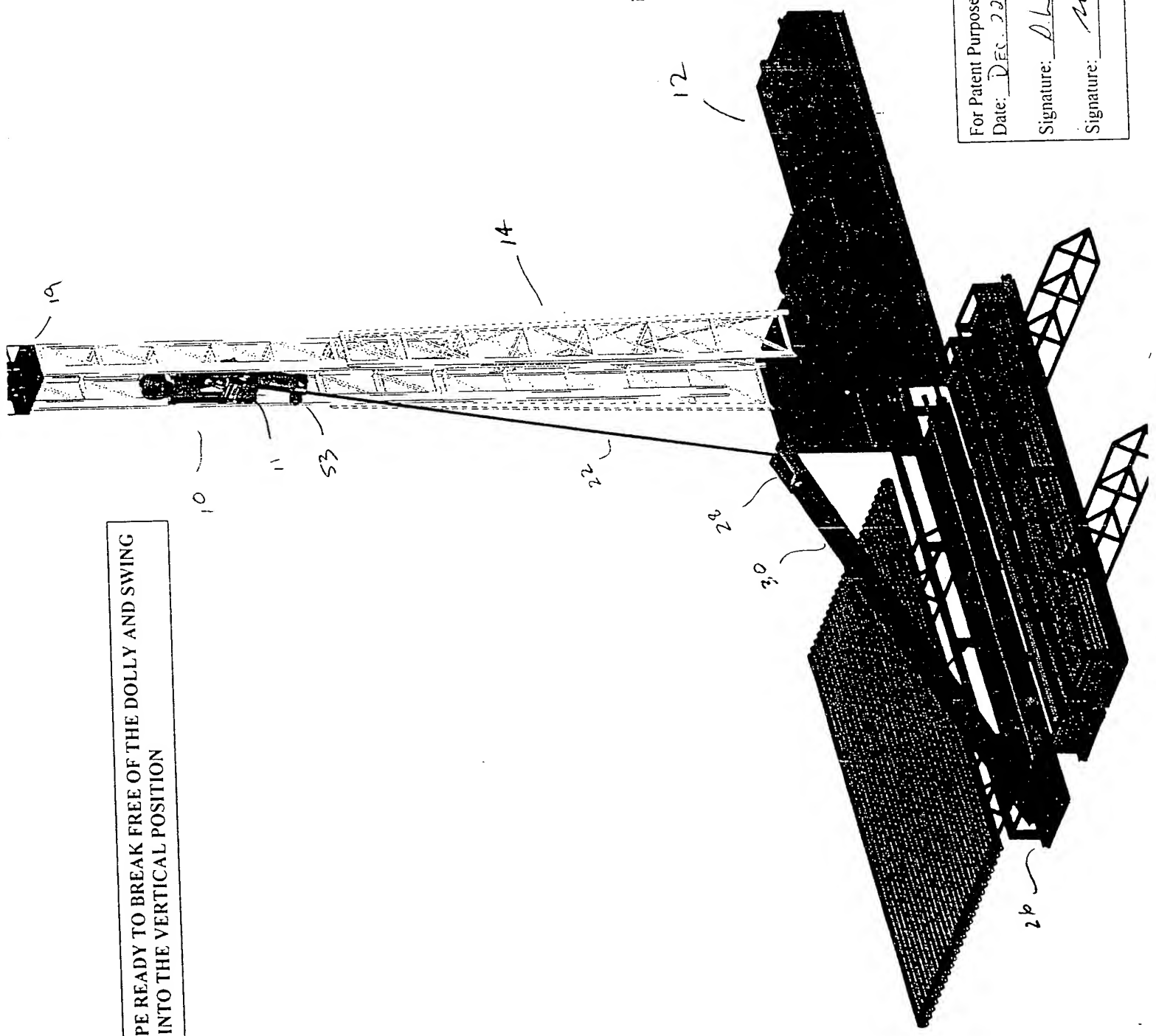


FIGURE 9

For Patent Purposes:
 Date: DEC. 22/03
 Signature: *D. L. L. L.*
 Signature: *W*

DRILL PIPE IN DRILLING POSITION, GRIPPER RELEASED

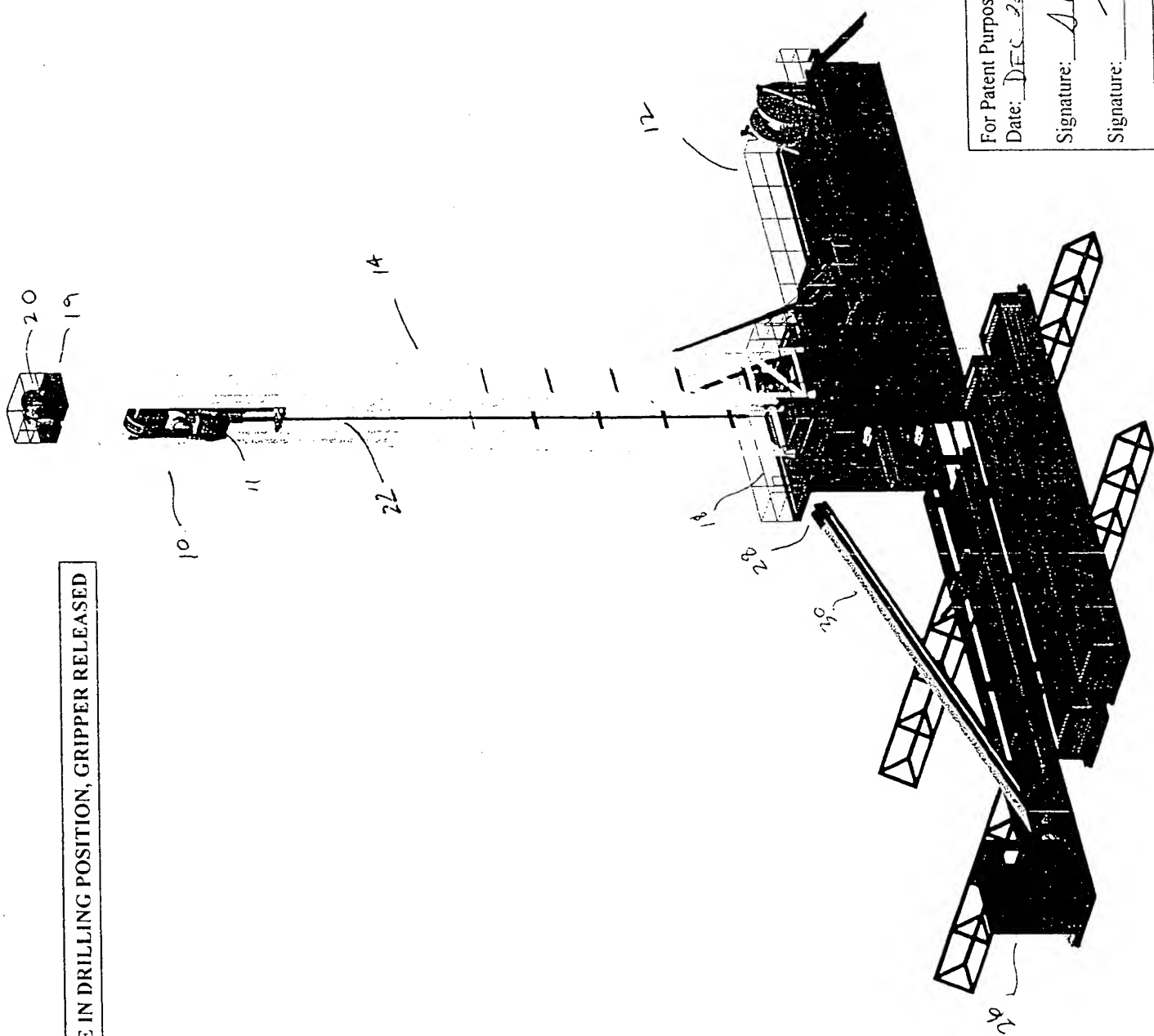


FIGURE 10

For Patent Purposes:
Date: DEC 22/03
Signature: *Shklate*
Signature: *m*

NOVEMBER 2003

COMING OUT OF THE HOLE TO LAY DOWN, OR TRIP

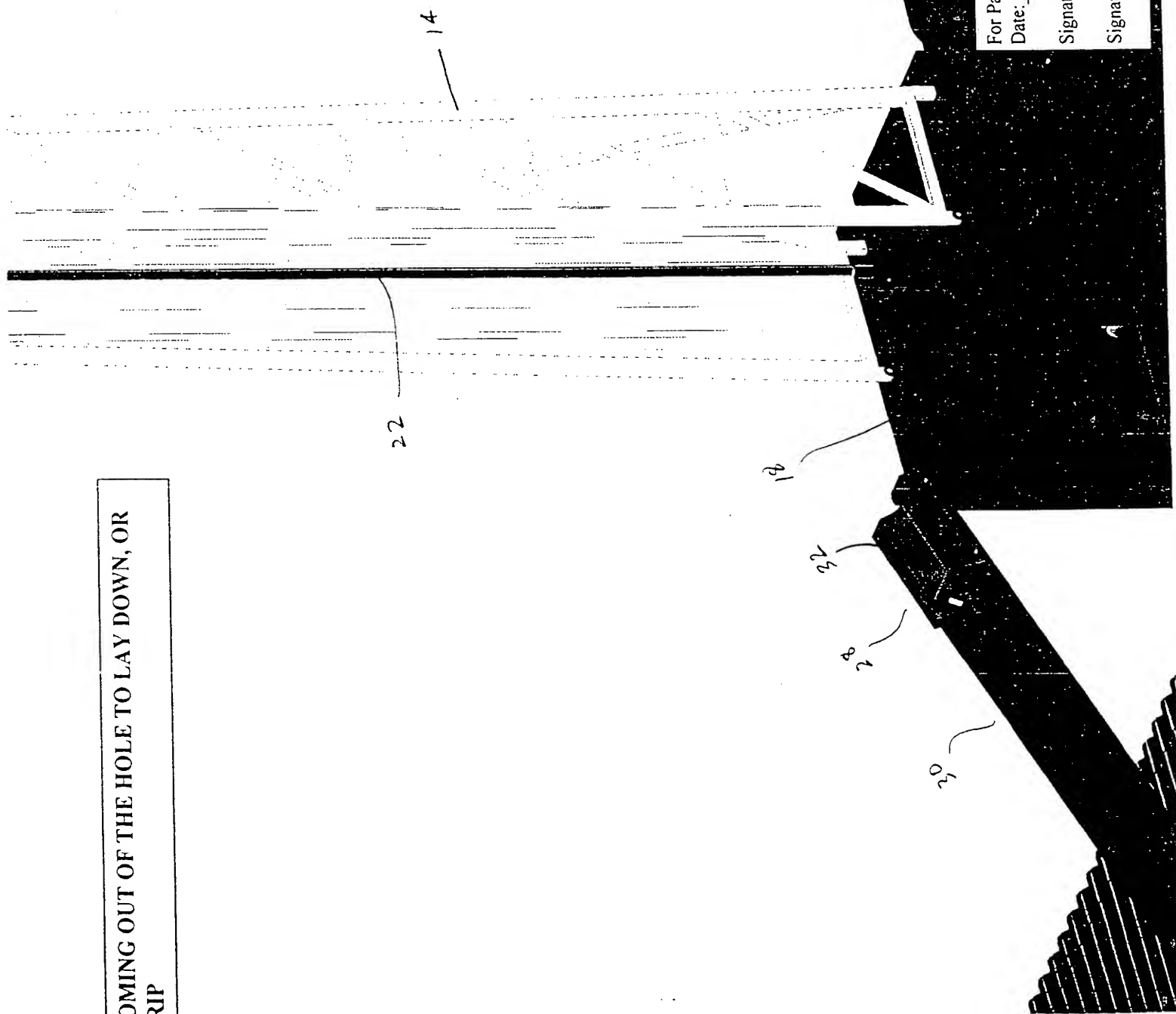


FIGURE 11

For Patent Purposes:

Date: December 2007

Signature: _____

Signature: _____

TOP DRIVE ARTICULATING SLIGHTLY TO ALLOW TAGGING
OF CART IN PREPARING TO LAY PIPE DOWN



For Patent Purposes:

Date: DEC 22/03

Signature: *A. L. Wata*

Signature: *W*

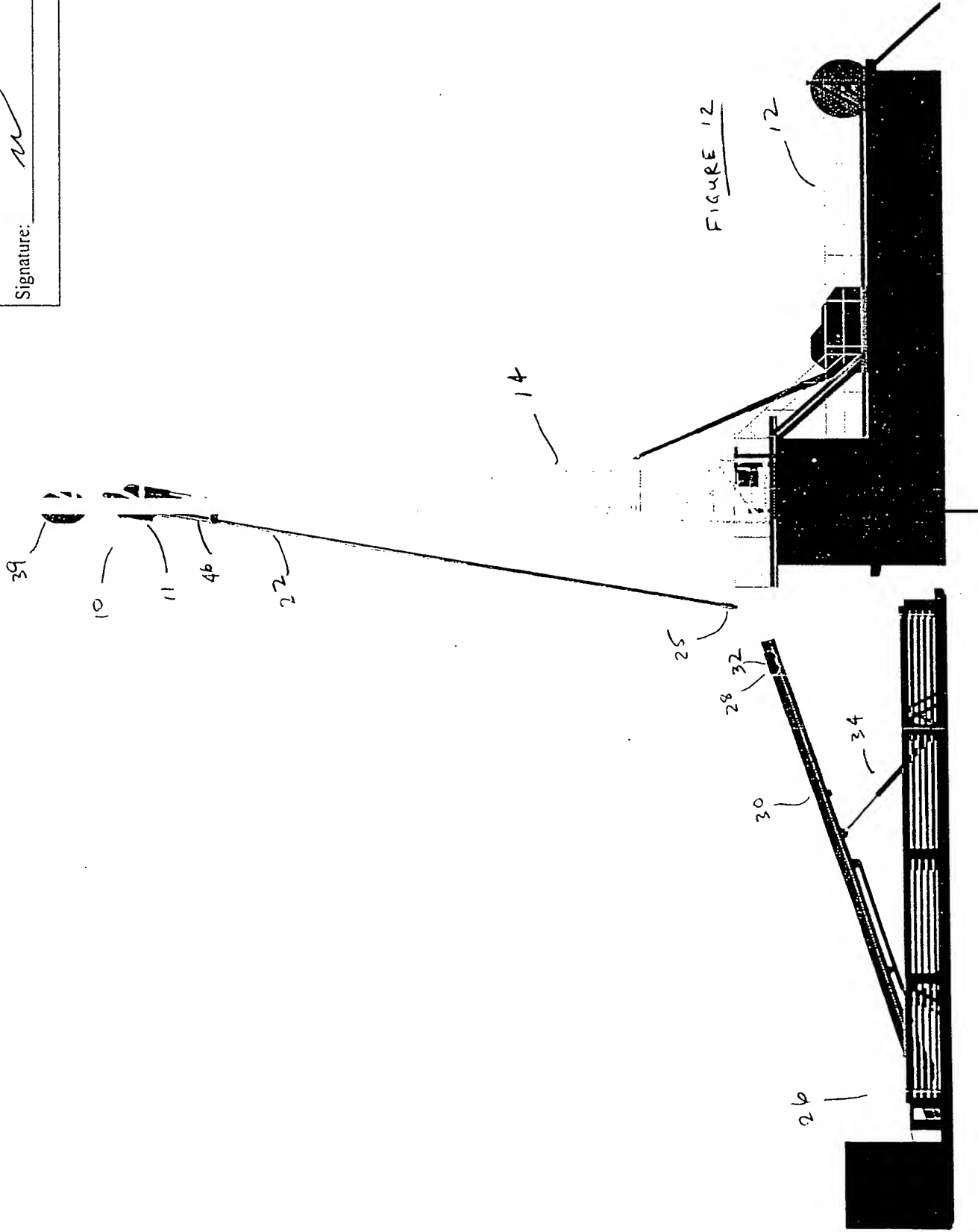
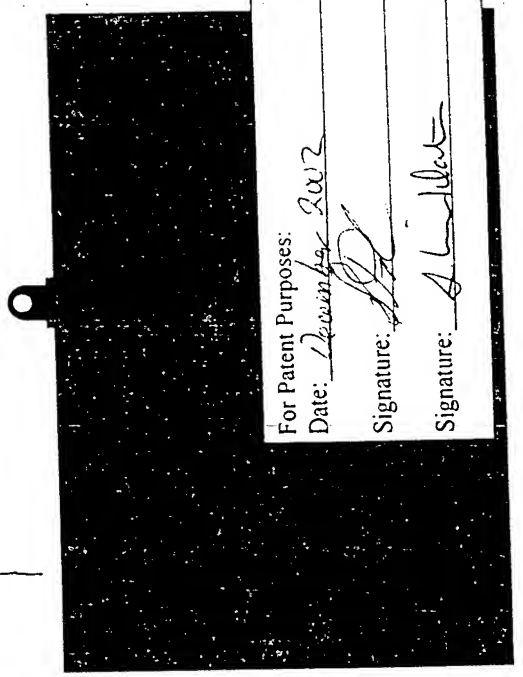
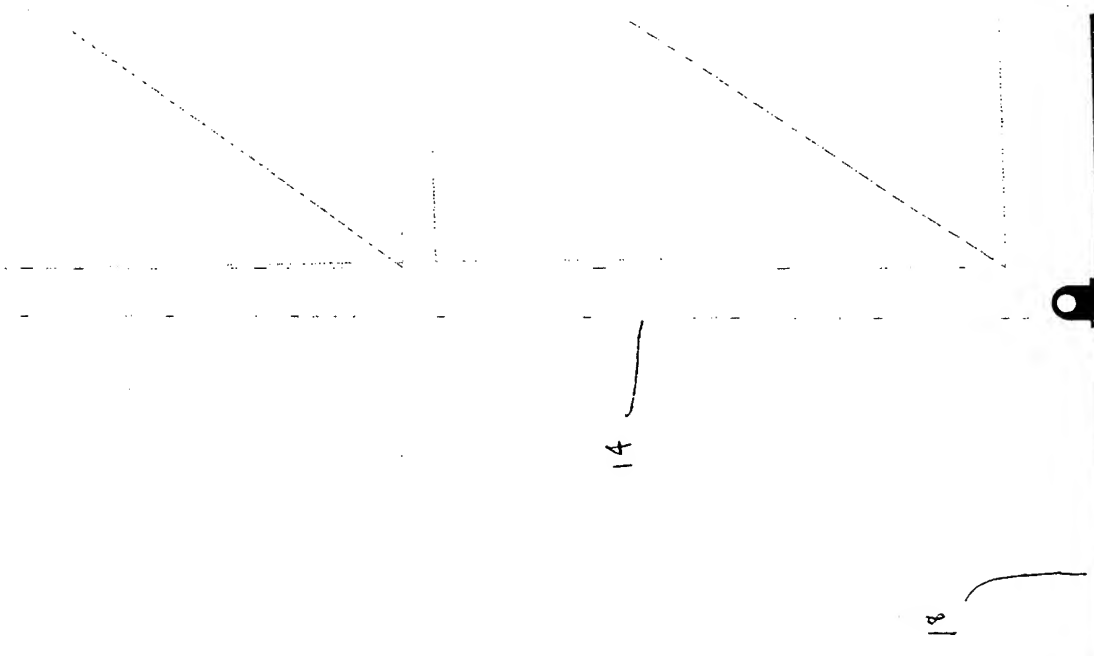
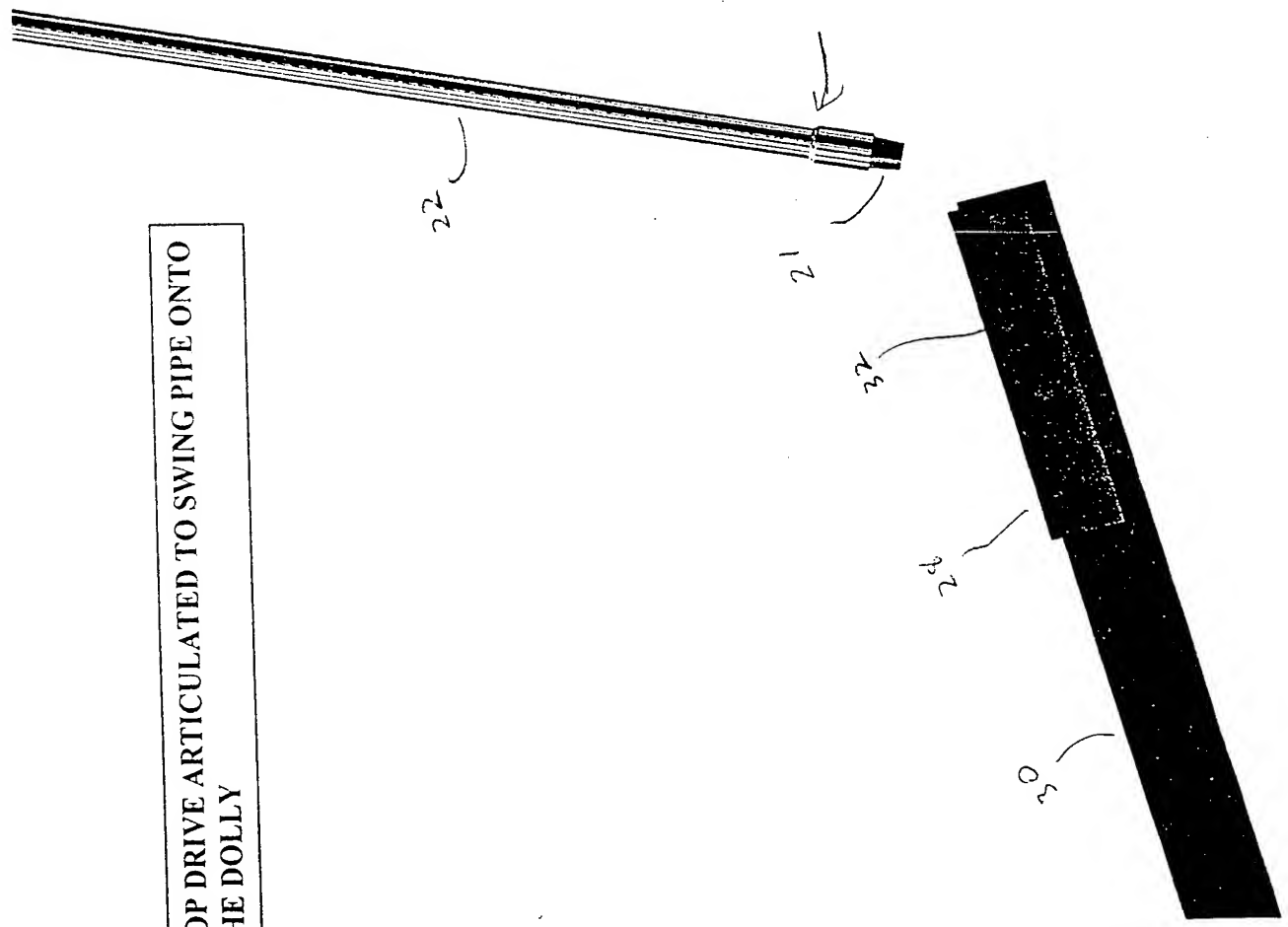


FIGURE 12

TOP DRIVE ARTICULATED TO SWING PIPE ONTO
THE DOLLY



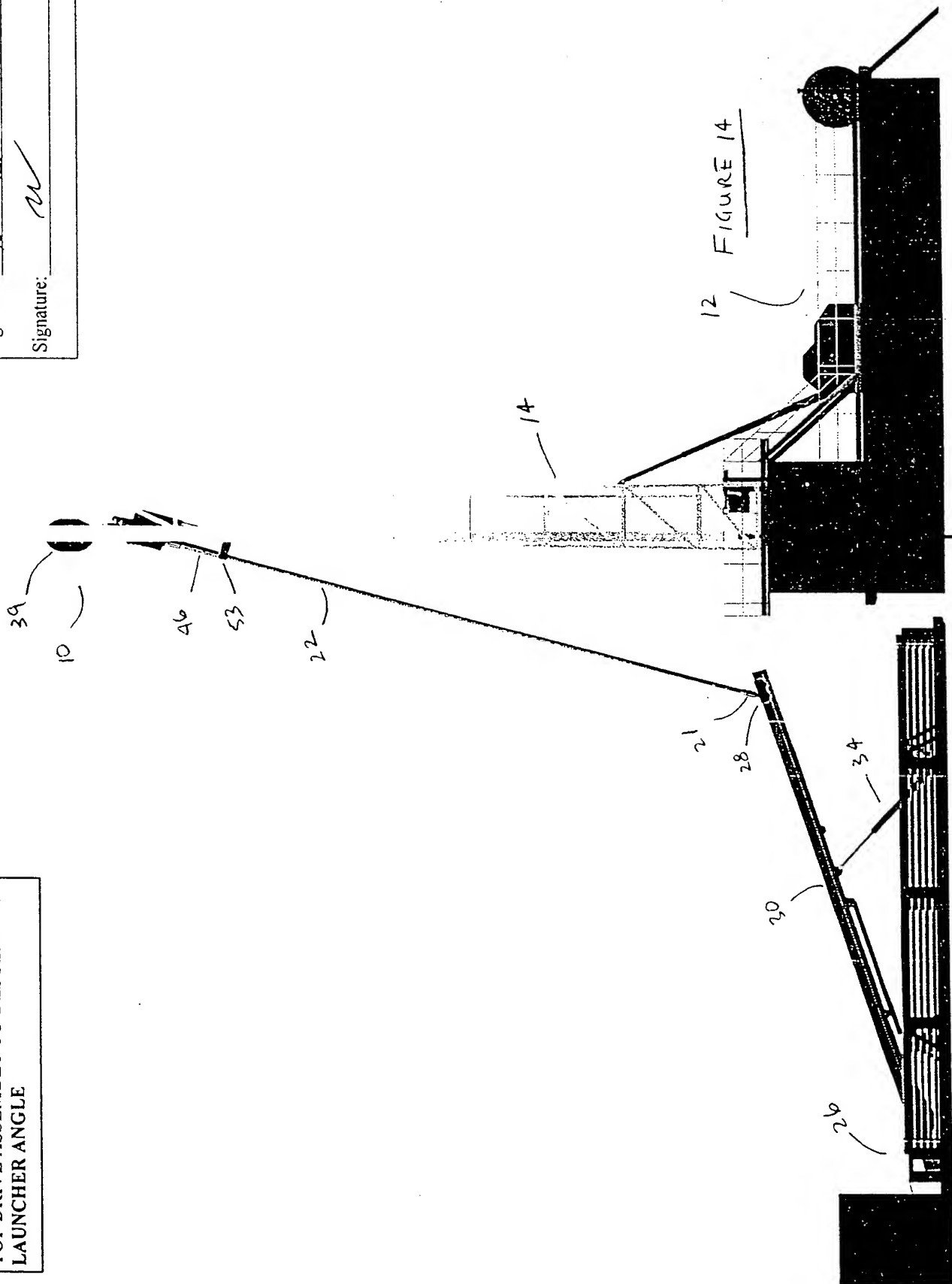
For Patent Purposes:
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Signature: [Signature]
Signature: [Signature]

FIGURE 13

ARTICULATING RAMS ON TOP DRIVE IN
 FLOAT POSITION, DRAWWORKS BRAKE
 HANDLE RAISED ALLOWING PIPE AND
 TOP DRIVE ASSEMBLY TO DESCEND TO
 LAUNCHER ANGLE



For Patent Purposes:
 Date: DEC. 22/03
 Signature: D. White
 Signature: W



BRAKE HANDLE UP TO SET PIPE IN
DOLLY IN PREP TO LAY DOWN

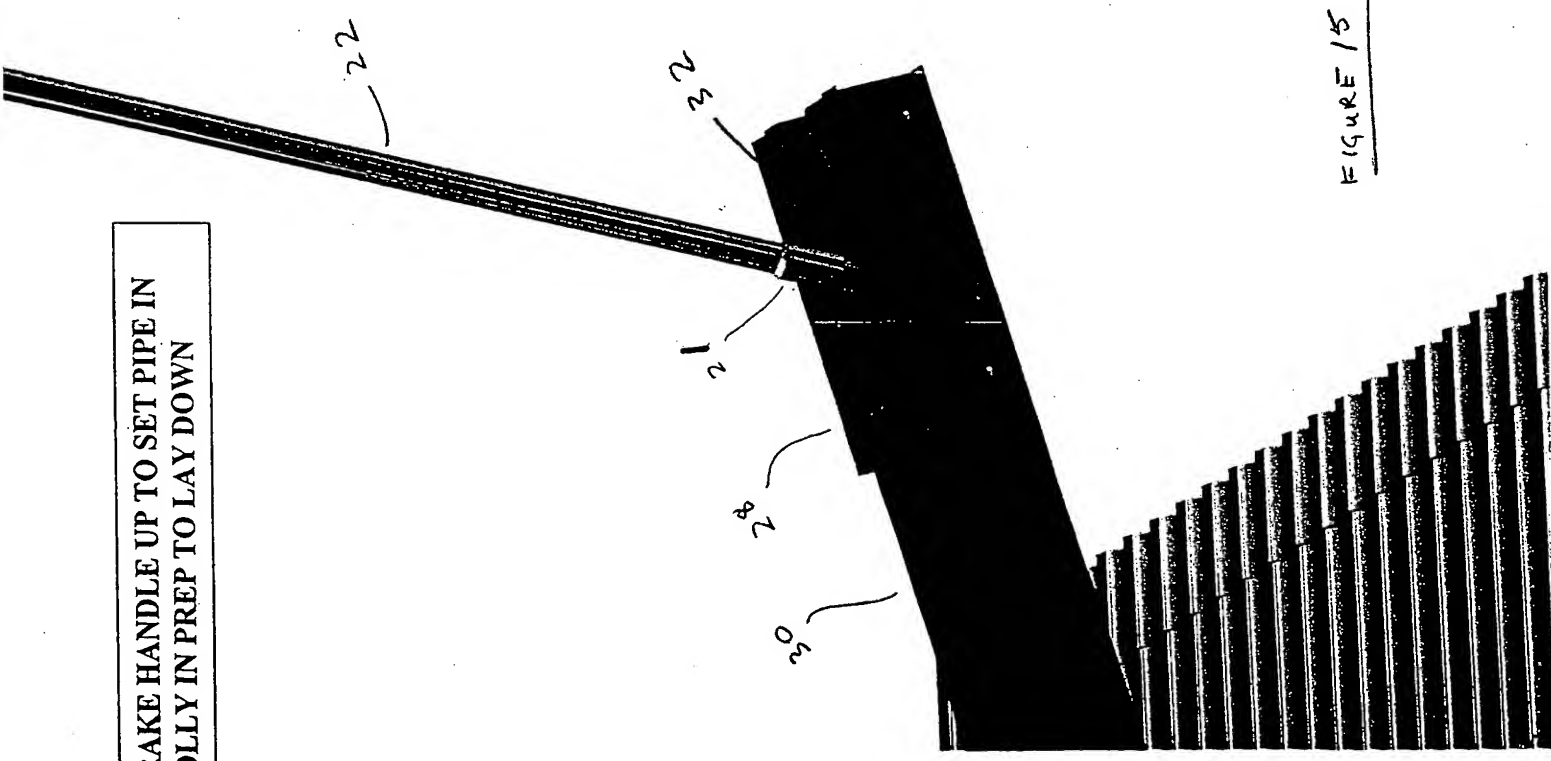
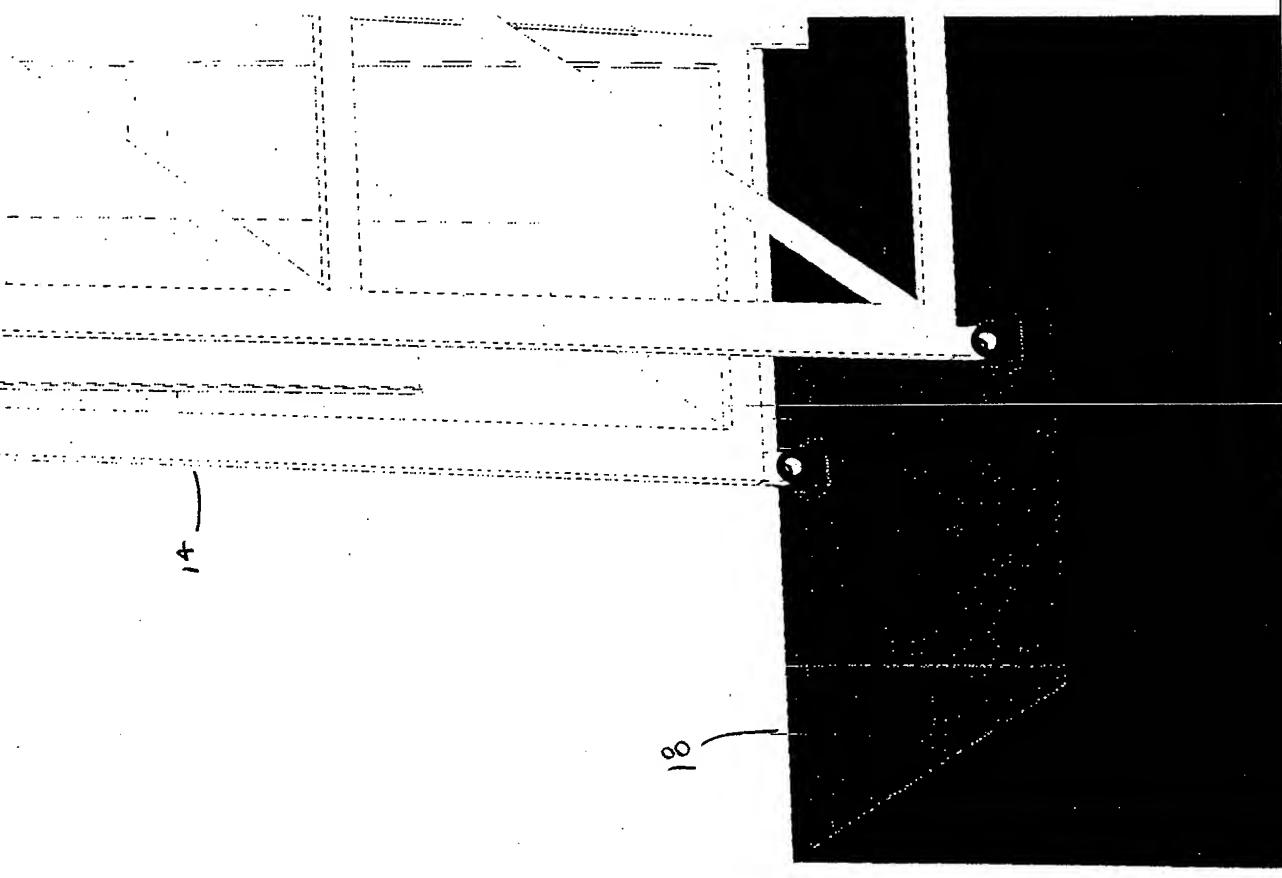


FIGURE 15



For Patent Purposes:
 Date: December 2002
 Signature: [Signature]
 Signature: [Signature]

PIPE DESCENDING...

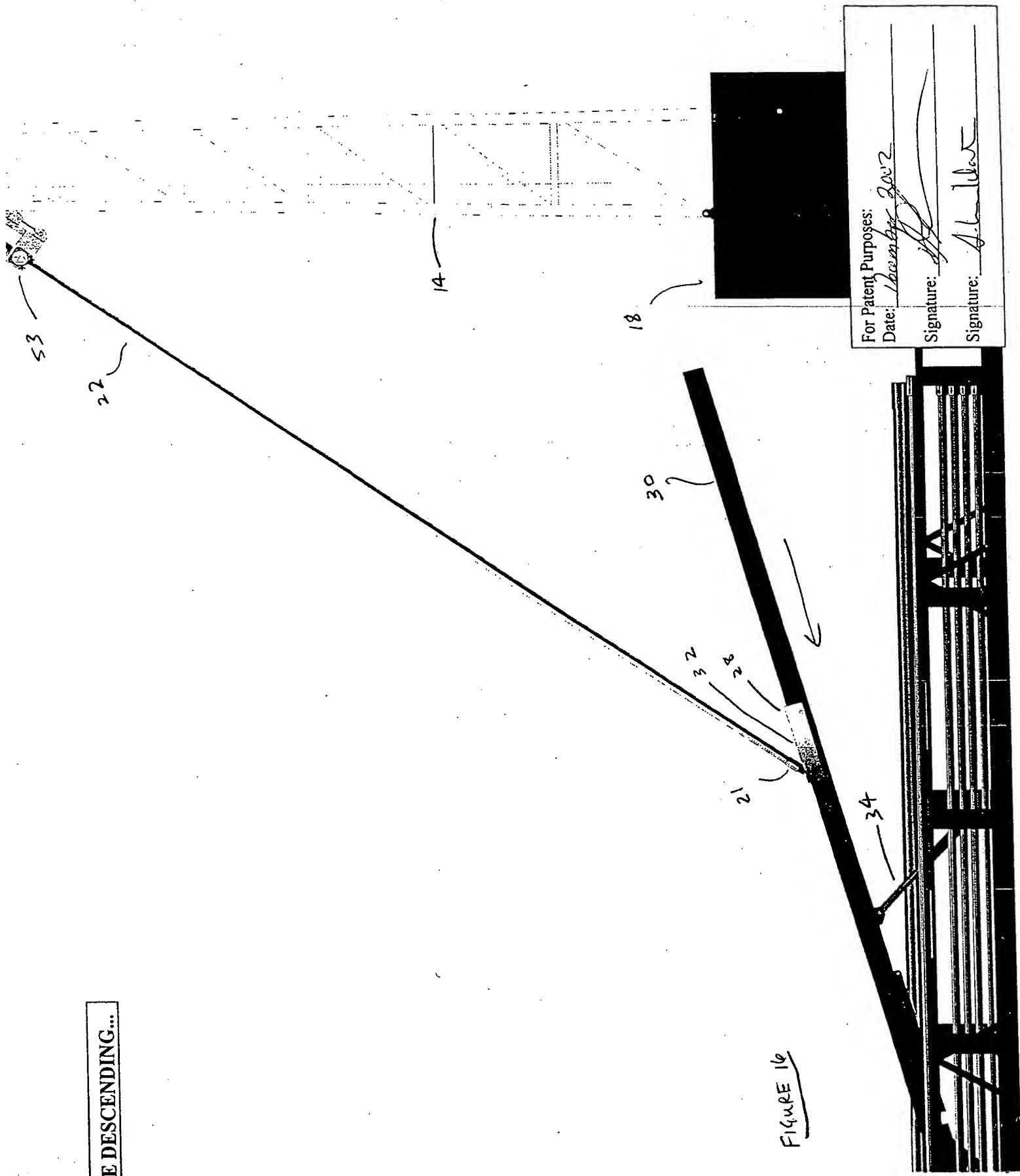
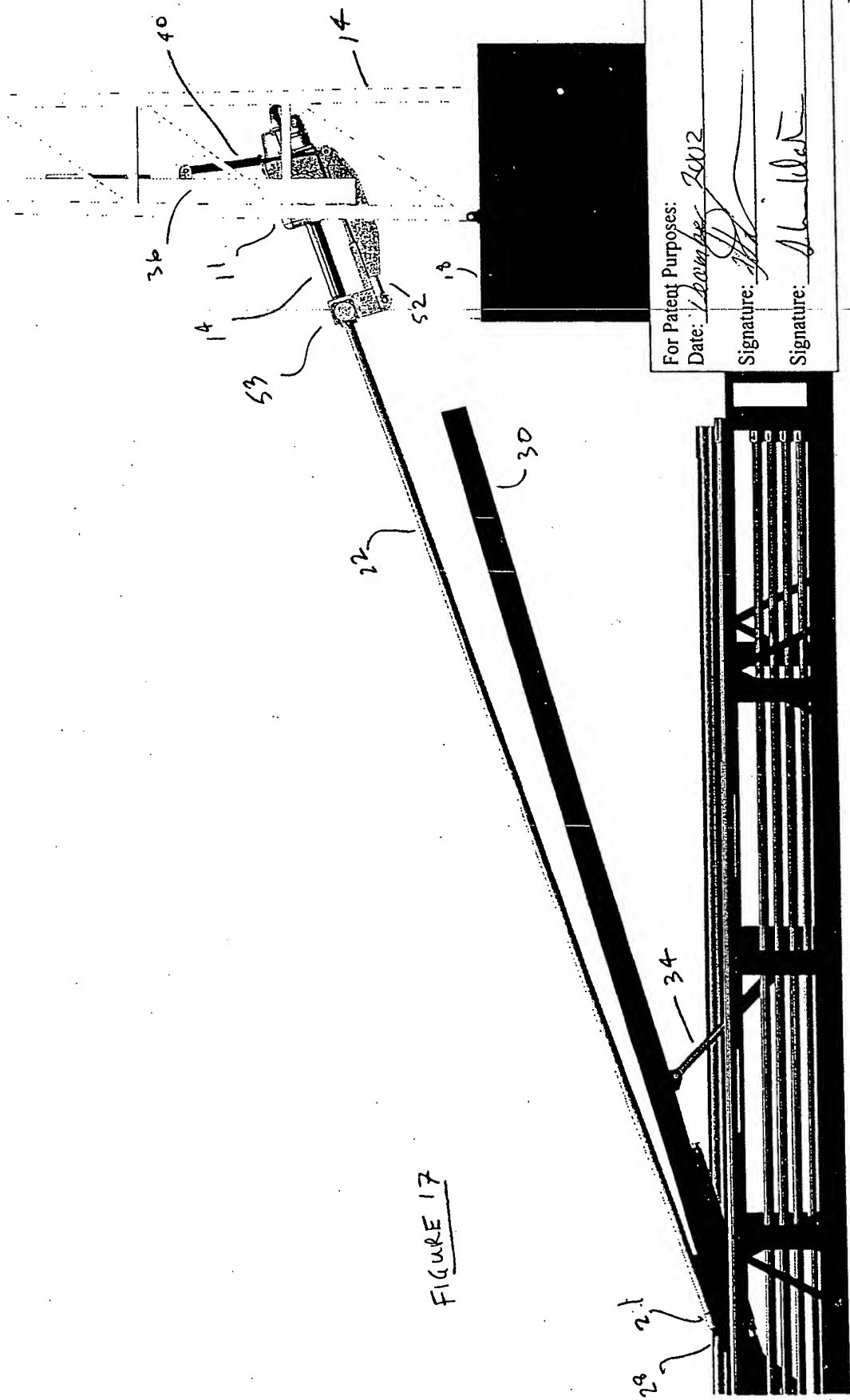


FIGURE 16

For Patent Purposes:	
Date: <u>November 2012</u>	Signature: <u>[Signature]</u>
Signature: <u>[Signature]</u>	

PIPE BEING LOWERED ONTO PIPE LAUNCHER TROUGH FOR
PLACEMENT BACK INTO TUBS OR RACKS



For Patent Purposes:
 Date: November 2002
 Signature: [Signature]
 Signature: [Signature]

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